

Claims:

1. A switching and connecting arrangement for coupling external and internal antennas, wherein the arrangement comprises at least

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— a diversity switch (301) arranged on a circuit board (300) for selecting a first antenna or a second antenna and for connecting them in turns electrically to the circuit (311) of a transceiver,

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characterized in that the arrangement also comprises

— a first integrated antenna switch (307) arranged on said circuit board for selecting a first antenna and connecting it electrically to said diversity switch (301), wherein the first antenna is either a first internal antenna (302) or a first external antenna (309) to be coupled, wherein the first antenna switch (307) is forced mechanically to select the first external antenna instead of the first internal antenna when it is coupled to said switch, and to select the first internal antenna when disconnected,

— a second integrated antenna switch (308) arranged on said circuit board for selecting a second antenna and connecting it electrically to said diversity switch (301), wherein the second antenna is either a second internal antenna (303) or a second external antenna (310) to be coupled, wherein the second antenna switch (308) is forced mechanically to select the second external antenna instead of the second internal antenna when it is coupled to said switch, and to select the second internal antenna when disconnected.

2. The arrangement according to claim 1, **characterized** in that

35 — the diversity switch (301) comprises at least a first feed interface (304) arranged for coupling the first antenna to the switch, at least a second feed interface (305) arranged for

coupling the second antenna to the switch, and at least a third interface (306) for coupling said switch to said circuit,

5 — the first antenna switch (307) comprises a fourth feed interface (317) arranged for coupling the first internal antenna (302) to the switch, at least a fifth feed interface (313) arranged for coupling the first external antenna (309) with its interface (315) to the switch, and at least a sixth interface (319) for coupling the switch to said diversity
10 switch,

15 — the second antenna switch (308) comprises a seventh feed interface (318) arranged for coupling the second internal antenna (303) to the switch, at least an eighth feed interface (314) arranged for coupling the second external antenna (310) with its interface (316) to the switch, and at least a ninth interface (320) for coupling the switch to said diversity
20 switch.

~~Sub A1~~ 20 3. The arrangement according to claim 1 or 2, **characterized** in that it also comprises a switch (321) arranged for coupling said diversity switch electrically to said circuit, wherein the switch (321) comprises at least a tenth interface (323) arranged for coupling the receiving part (WLAN RX) of said circuit to the switch, at least an eleventh interface (322) arranged for coupling the transmission part (WLAN TX) of said circuit to the switch, and wherein said switch is arranged to connect said diversity switch to the receiving part (WLAN RX) for transferring a signal received with the selected antenna, or to the transmission part (WLAN TX) for transmitting a signal by means of the selected antenna.

25 30 35 4. The arrangement according to any of the claims 1 to 3, **characterized** in that the receiving part (WLAN RX) comprises a separate bandpass filter (FL1) for processing a received signal, and that the transmission part (WLAN TX) comprises a separate low pass filter (FL2) for processing a signal to be transmitted.

5. The arrangement according to any of the claims 1 to 4, characterized in that said circuit board (300) is fitted in an expansion card (C) comprising said transceiver and also an expansion part (2) fitted at the end of the expansion card, wherein said circuit board at least partly and said internal antennas are arranged inside said expansion part.
- 10 6. The arrangement according to any of the claims 1 to 5, characterized in that the first internal antenna (302) and the second internal antenna (303) are arranged on said circuit board (300).
- 15 7. The arrangement according to claim 3, characterized in that said switch (321) and said diversity switch (301) are integrated in a component comprising at least said first feed interface (304), said second feed interface (305), said tenth interface (323), and said eleventh interface (322).
- 20 8. An expansion card comprising a switching and connecting arrangement for coupling external and internal antennas, wherein the arrangement comprises at least
- 25 — a diversity switch (301) arranged on the circuit board (300) of the expansion card for selecting a first antenna or a second antenna and for connecting them in turns electrically to the circuit (311) of a transceiver,
- 30 25 characterized in that the arrangement also comprises
- 35 — a first integrated antenna switch (307) arranged on said circuit board for selecting a first antenna and connecting it electrically to said diversity switch (301), wherein the first antenna is either a first internal antenna (302) or a first external antenna (309) to be coupled, wherein the first antenna switch (307) is forced mechanically to select the first external antenna instead of the first internal antenna when it is coupled to said switch, and to select the first internal antenna when disconnected,

- a second integrated antenna switch (308) arranged on said circuit board for selecting a second antenna and connecting it electrically to said diversity switch (301), wherein the second antenna is either a second internal antenna (303) or a second external antenna (310) to be coupled, wherein the second antenna switch (308) is forced mechanically to select the second external antenna instead of the second internal antenna when it is coupled to said switch, and to select the second internal antenna when disconnected,
- 5 — wherein said expansion card consists of at least a card part (1) arranged to be inserted preferably fully inside the expansion card connection of an electronic device, and an expansion part (2) attached to the end of said card part (1), said circuit board (300) being fitted at least partly and the first internal antenna (302) and the second internal antenna (303) being fitted inside the expansion card (2).
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- 20 9. The expansion card according to claim 8, **characterized** in that
- 25 — the diversity switch (301) comprises at least a first feed interface (304) arranged for coupling the first antenna to the switch, at least a second feed interface (305) arranged for coupling the second antenna to the switch, and at least a third interface (306) for coupling said switch to said circuit,
- 30 — the first antenna switch (307) comprises a fourth feed interface (317) arranged for coupling the first internal antenna (302) to the switch, at least a fifth feed interface (313) arranged for coupling the first external antenna (309) with its interface (315) to the switch, and at least a sixth interface (319) for coupling the switch to said diversity switch,
- 35 — the second antenna switch (308) comprises a seventh feed interface (318) arranged for coupling the second internal antenna (303) to the switch, at least an eighth feed interface

(314) arranged for coupling the second external antenna (310) with its interface (316) to the switch, and at least a ninth interface (320) for coupling the switch to said diversity switch.

10. The expansion card according to claim 8 or 9, characterized in that said arrangement also comprises a switch (321) arranged for coupling said diversity switch electrically to said circuit, wherein the switch (321) comprises at least a tenth interface (323) arranged for coupling the receiving part (WLAN RX) of said circuit to the switch, at least an eleventh interface (322) arranged for coupling the transmission part (WLAN TX) of said circuit to the switch, and wherein said switch is arranged to connect said diversity switch to the receiving part (WLAN RX) for transferring a signal received with the selected antenna, or to the transmission part (WLAN TX) for transmitting a signal by means of the selected antenna.

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